5   Abstract

        A computer system that makes it difficult to analyze the content

of a calculation. In the computer system, a power operation unit

performs the following operations using the input data "a" and "b":

10    $g_a = g^a \bmod n$, $g_b = g^b \bmod n$. Next, in the computer system, a multiplication

unit performs the following calculation using g_a and g_b: g_{ab} = g_a

$\times$ g_b mod n. Next, in the computer system, a discrete logarithm

calculation unit calculates c_i mod p_i − 1 to satisfy g_{ab} = g^{ci} mod p_i

($i = 1$, 2, 3,…,k) . Next, in the computer system, a CRT unit   calculates

15   "c" to satisfy c_i = c mod p_i − 1 (i = 1, 2, 3,…,k) using the Chinese

remainder theorem CRT.